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21.1.96

Dear Gian Carlo,

I have now had time to return to your letter of 6<sup>th</sup> December and would like to offer the following comments.

There are two essentially distinct readings of OM-loc:

(1) There is the reading which prohibits measurement procedures on the left from affecting measurement outcomes on the right. This is a case by case version of the probabilistic parameter independence, P.I.

This is the reading which is actually used in the derivation of  $B.M. \propto \text{Compl.} \wedge (\text{OM-loc}) \supset \neg (\text{ER-loc}) \wedge P.T.O.$

and hence the denial of OH-Loe in this sense can indeed block the derivation of T(ER-Loe) as we all agreed.

(2) But there is a logically stronger sense that prohibits not only setting-to-result effects at space-like separation, but also result-to-result effects (i.e. a case-by-case version of O.I.)

Now it is crucial for the logical structure of your argument that you use the logically weakest version of OH-Loe that is necessary for the result \* to hold. If you use a stronger version than is necessary, you cannot infer that a failure of this stronger version will block the derivation of T(ER-Loe). That is just a matter of straight logic.

Now in your discussion of the relation between OH-Loe and B-Loe, you are all

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the time using the stronger version of OM-Loc, since in your examples you refer to the question of whether the outcomes of the two measurements influence one another.

Referring to my previous letter dated 5<sup>th</sup> November, I was always using the weak version of OM-Loc, and for that version, I maintain that my discussion of the problematics ~~of~~ of deriving  $OM\text{-Loc} \supset B\text{-Loc}$  was correct.

I would like now to deal with your Example 3, in which you claim that  $OM\text{-Loc} \supset P\text{-I.}$ , requires a No Conspiracy Description.

If Alice selects <sup>by some rule</sup> when to toss, then she is inducing a place-shifting in the random sequence generated by Bob. If this altered the limiting frequency of Bob's results, this would contradict the randomness pro-

of Bob's sequence. But if Bob's sequence really is random, this could not happen!

If you agree with the points in this letter, then I suggest the best way forward would be as follows: I enclose a copy of a revised revision of the paper with La Rivière, which I think summarizes my considered point of view on the vital question of a correct relativistic formulation of the EPR argument. I have been asked by Bob Cohen whether I would consider contributing this paper to the Shimony Festschrift he is editing. I would be happy to do this, and then you could raise additional points and comments in a further submission to Studies in History and Philosophy of Modern Physics.

I would play no part in the editorial discussion of such a submission,

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but would have this for Jeremy to sent  
out with you.

I have very much enjoyed, and  
benefited from, our discussions of this  
matter.

With very best regards

Michael

P.S. I should add in relation <sup>to</sup> to  
your discussion of why the violation  
of OM-Loc is less serious than  
the violation of ER-loc from a  
relativistic point of view, that  
you again use the strong version  
of OM-Loc, when you talk, for  
example, of a "violation of OM-Loc-- due  
to a violation of O.I."

